

### Abstract

#### High Density Flash Memory with High Speed Cache Data Interface

A data storage device comprises a controller, a FeRAM memory unit, and a flash memory unit having a much higher data storage capacity than the FeRAM memory unit. Initially, when data is received by the data storage device, the controller stores it in the FeRAM memory unit. This can be done very quickly, since FeRAM devices have a high write rate. Subsequently, the controller transfers the data to the flash memory unit. Thus, the data storage device combines the high storage rate ability of FeRAM devices and the high storage capacity of flash memory devices.

[Fig. 1]